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ORCID numbers: Adelyne Maria Mendes Pereira 0000-0002-2497-9861; Claudia Hoirisch 0009-0002-6357-8961; Maria Shevchenko 0000-0002-4540-539X; Cui Ying 0009-0009-3081-1780; Wang Xiaoqi 0009-0005-5076-6930; Chen Hao 0009-0003-5624-1225; Huang Fei 0000-0001-8620-3869; Hu Jingran 0009-0001-1128-4913; Lai Chengyu 0009-0001-3779-6984; Wang Yuan 0009-0006-6776-1391; Liu Kaixuan 0009-0008-1355-5191; Cristiani Vieira Machado 0000-0002-9577-0301

Correspondence to: Adelyne Maria Mendes Pereira
E-mail: adelyne.mendes@fiocruz.br

Contributors: Adelyne Maria Mendes Pereira: contributed to the conceptualization and original draft. Claudia Hoirisch: contributed in project administration, participated in the drafting of the manuscript (section on Brazil's Health System) and in the final revision. Maria Shevchenko: contributed to data investigation and writing original draft. Cui Ying: contributed to the conceptualization and original draft. Wang Xiaoqi: contributed by coordinating resources, reviewing and editing the article. Chen Hao: contributed to data investigation and original draft preparation. Huang Fei: contributed to the original draft. Hu Jingran: contributed by coordinating resources and reviewing the article. Lai Chengyu: contributed to data investigation. Wang Yuan: contributed to data collection. Liu Kaixuan: contributed to data collection. Cristiani Vieira Machado: contributed to the original draft (Brazil's health system), by the reviewing of the article and to final revision.
The corresponding author attests that all listed authors meet authorship criteria and that no others meeting the criteria have been omitted.
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Health systems in the BRICS context: institutional characteristics and contemporary challenges in Brazil, China, and Russia

Adelyne Maria Mendes Pereira, Claudia Hoirisch, Maria Shevchenko, Cui Ying, Wang Xiaoqi, Chen Hao, Huang Fei, Hu Jingran, Lai Chengyu, Wang Yuan, Liu Kaixuan, Cristiani Vieira Machado

Adelyne Maria Mendes Pereira, PhD, Researcher, Department of Health Administration and Planning; Professor, Public Health Graduate Program; Coordinator, BRICS Network of Research in Public Health and Health Systems in Brazil, Sergio Arouca National School of Public Health (ENSP), Oswaldo Cruz Foundation (Fiocruz), Rua Leopoldo Bulhões, 1480, Manguinhos, Rio de Janeiro, Brazil, 21041-210

Claudia Hoirisch, MSc, Researcher, Vice-Presidency of Global Health and International Relations; Coordinator, BRICS Network of Research in Public Health and Health Systems in Brazil, Oswaldo Cruz Foundation (Fiocruz), Brasil Ave., 4365, Manguinhos, Rio de Janeiro, Brazil, 21040-900

Maria Shevchenko, MBA, Head of International Relations Department, Russian Research Institute of Health, 11, Dobrolyubova str., Moscow, 127254, Russia

Cui Ying, PhD, Research Fellow, Director, Office of Policy Planning and Evaluation, Chinese Center for Disease Control and Prevention (Chinese Academy of Preventive Medicine), Changbai Road, 155, Changping District, Beijing, China, 102206

Wang Xiaoqi, MSc, Associate Research Fellow, Director, Office of International Cooperation, Chinese Center for Disease Control and Prevention (Chinese Academy of Preventive Medicine), Changbai Road, 155, Changping District, Beijing, China, 102206

Chen Hao, MPH, Research Fellow, Deputy director, Office of Policy Planning and Evaluation, Chinese Center for Disease Control and Prevention (Chinese Academy of Preventive Medicine), Changbai Road, 155, Changping District, Beijing, China, 102206

Huang Fei, MD, Research Fellow, Director, Applied Technology Department, National Center for TB control and prevention, Chinese Center for Disease Control and Prevention (Chinese Academy of Preventive Medicine), Changbai Road, 155, Changping District, Beijing, China, 102206

Hu Jingran, MPH, MA, Associate Research Fellow, Senior Program Officer, Office of International Cooperation, Chinese Center for Disease Control and Prevention (Chinese Academy of Preventive Medicine), Changbai Road, 155, Changping District, Beijing, China, 102206

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Lai Chengyu, LLM, Assistant Researcher, Office of Policy Planning and Evaluation, Chinese Center for Disease Control and Prevention (Chinese Academy of Preventive Medicine), Changbai Road, 155, Changping District, Beijing, China, 102206

Wang Yuan, MPH, Associate Research Fellow, Office of Policy Planning and Evaluation, Chinese Center for Disease Control and Prevention (Chinese Academy of Preventive Medicine), Changbai Road, 155, Changping District, Beijing, China, 102206

Liu Kaixuan, MPH, Assistant Researcher, Office of Policy Planning and Evaluation, Chinese Center for Disease Control and Prevention (Chinese Academy of Preventive Medicine), Changbai Road, 155, Changping District, Beijing, China, 102206

Cristiani Vieira Machado, PhD, Visiting Scholar at the Center for Advanced Study in the Behavioral Sciences (CASBS), Stanford University (2025-2026); Professor and Researcher, Sergio Arouca National School of Public Health (ENSP), Oswaldo Cruz Foundation (Fiocruz), Rua Leopoldo Bulhões, 1480, Manguinhos, Rio de Janeiro, Brazil, 21041-210

ABSTRACT

Health systems in emerging economies face the dual challenge of expanding access while ensuring equity, quality, and financial sustainability amid demographic, epidemiological, and geopolitical changes. This article analyzes the health systems of Brazil, China, and Russia, three key members of the BRICS group with large populations and diverse institutional paths. Using policy documents, official statistics, and secondary literature, we examine their historical foundations, governance structures, financing mechanisms, service delivery models, and recent reforms. Despite differing political, economic, and administrative traditions, these countries share a strong state role in stewardship and a formal commitment to universal access. Brazil's tax-funded Unified Health System is rooted in constitutional rights, decentralization, and social participation. China has achieved near-universal insurance coverage through consolidated social health insurance schemes under strengthened central regulation, alongside ongoing payment and disease-control reforms. Russia maintains universal coverage through mandatory health insurance within a territorially organized, hierarchical delivery system rooted in the Semashko model. Major challenges include regional inequalities, hospital-centered care patterns, fiscal pressures, demographic ageing, and the rising burden of chronic diseases. The comparative analysis reveals multiple institutional pathways toward universal health coverage and highlights the strategic importance of public stewardship, primary health care, and domestic production capacity. These findings contribute to debates on health system strengthening and South–South cooperation within BRICS and the broader global health agenda.

Key Words: BRICS, Brazil's health system; China's health system; Russia's health system; public health; global health; health cooperation

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Introduction

Over the past decades, health systems have become central arenas for addressing structural inequalities, demographic transitions, epidemiological changes, and global health emergencies. In this context, middle-income and emerging economies face the dual challenge of expanding access to health services while ensuring equity, financial protection, and system sustainability. Advancing the development of people-centered and resilient health systems is essential to reducing avoidable mortality and mitigating substantial economic losses. As argued by Kruk et al. (2018) [1], poor-quality health systems are responsible for more than 8 million deaths annually in low- and middle-income countries, generating economic welfare losses estimated at US $6 trillion. These findings underscore that expanding coverage alone is insufficient; improving quality, safety, and responsiveness is critical to ensuring that health systems effectively translate access into meaningful health gains and social protection.

The BRICS countries – Brazil, Russia, India, China, South Africa, Egypt, Ethiopia, Indonesia, Iran, Saudi Arabia and the United Arab Emirates, – occupy a strategic position in this debate, combining large populations and significant internal heterogeneity, and increasingly positioning themselves as a bloc capable of influencing global health governance.

Since the early 2010s, the BRICS has explicitly prioritized health, emphasizing principles such as universal access, equity, solidarity, and South-South cooperation. Health ministerial declarations and joint initiatives have highlighted the importance of strengthening national health systems, enhancing public health and disease control capacities, promoting access to medicines and technologies, and fostering collaborative research[1].

Brazil assumed the BRICS Chairship on January 1, 2025 under the theme “Strengthening Global South Cooperation for More Inclusive and Sustainable Governance.” Brazil’s Presidency focused on two priorities: the Global South Cooperation and BRICS Partnerships for Social, Economic and Environmental Development. In this context, the BRICS Health Ministers’ Declaration recommended an unprecedented partnership aimed at eliminating socially determined diseases, reinforcing joint actions to promote health among member states and partner countries[2]. The issues debated within the BRICS framework include the burden of chronic non-communicable diseases; the modernization of health systems; the promotion of digital health and innovation; improved access to vaccines, medicines, diagnostics, and other essential health technologies; the reduction of maternal and child mortality; the strengthening of Primary Health Care (PHC); the control of communicable diseases; preparedness for and response to public health emergencies; adaptation to the health impacts of climate change; and the promotion of healthy diets and nutrition.

Health cooperation within the BRICS framework can influence debates on equity, universality, and South-South health collaboration. In this sense, the development of institutionalized cooperation mechanisms and coordinated initiatives can contribute to more consistent and sustainable outcomes across PHC, disease control, health technologies, and workforce development. Expanding engagement

[1] BRICS. BRICS Health Ministers Declaration, 2011–2024. Accessed 09.12.2025. https://brics.br/en/documents/collection-of-previous-presidencies/health-ministerial-declarations

[2] BRICS. Declaration of the XV BRICS Health Ministers’ Meeting. June 17, 2025. Accessed 09.12.2025. https://brics.br/pt-br/assets/final-brics-health-declaration-17-06-25rev.pdf

beyond governmental channels – through academic collaboration, research networks, professional associations, and dialogue with civil society – can also help diversify perspectives and foster innovation [2].

Analyses of BRICS health systems may contribute not only to academic knowledge but also to policy learning and international cooperation. Brazil, China, and Russia represent relevant cases within the BRICS group. Despite distinct political trajectories, institutional arrangements, and historical legacies, the three countries share a strong role of the State in health system governance and a constitutional or legal commitment to universal access to health care. At the same time, each system reflects specific responses to national contexts marked by territorial vastness, regional inequalities, demographic ageing, and changing disease profiles.

Brazil's Unified Health System (Sistema Único de Saúde, SUS) is grounded in a rights-based approach established by the 1988 Constitution, combining universality, comprehensiveness, decentralization, and social participation[3]. China's health system has undergone profound reforms over the past four decades, evolving from a fragmented, out-of-pocket model to a broad system of social health insurance (SHI) and expanding public health infrastructure under strong state stewardship [3]. Russia's health system, rooted in the Semashko tradition, ensures universal coverage through mandatory health insurance and a multilevel service delivery structure adapted to its vast and diverse territory[4].

The objective of this article is to explore the main characteristics of the health systems of Brazil, China, and Russia, considering their historical foundations, organizational structures, financing arrangements and governance models. The analysis was based on policy documents, official statistics, and secondary literature to provide a deeper understanding of how different institutional designs can shape health system performance and equity outcomes. By highlighting both convergences and divergences between the countries, the study seeks to contribute to the literature on comparative health systems and to inform ongoing discussions on health system strengthening and cooperation within the BRICS framework. Moreover, it sheds light on the potential contributions of BRICS countries to global health debates at a time when multilateral cooperation faces growing tensions and uncertainties.

Health system characteristics in Brazil, China, and Russia

Brazilian unified health system: public, universal and comprehensive

Brazil is a Latin American country with over 200 million residents, a vast territory, and diverse biomes, peoples, and cultures. Politically and institutionally, it functions as a presidential and federal democratic republic composed of three levels of government: the Union, 26 states, and the Federal District, along with 5570 municipalities, all sharing responsibilities for public policies, including health.

[3] Brasil. Lei No. 8.080, de 19 de setembro de 1990. Dispõe sobre as condições para a promoção, proteção e recuperação da saúde, a organização e o funcionamento dos serviços correspondentes e dá outras providências.[Brazil. Law No. 8,080 of September 19, 1990. It provides for the conditions for the promotion, protection and recovery of Health, the organization and functioning of the corresponding services and makes other arrangements] (In Portuguese). Accessed 09.12.2025. https://www2.camara.leg.br/legin/fed/lei/1990/lei-8080-19-setembro-1990-365093-publicacaooriginal-1-pl.html

[4] Федеральный закон от 21.11.2011 г. № 323-ФЗ. Об основах охраны здоровья граждан в Российской Федерации [Russian Federation. Federal Law No. 323-FZ of November 21, 2011. On the Fundamentals of Citizens' Health Protection in the Russian Federation] (in Russian). Accessed 09.12.2025. http://government.ru/docs/all/100186/

Historically, the nation has been marked by deep inequalities rooted in the colonial era and worsened by capitalist modernization, which concentrated wealth and failed to distribute it fairly. Structural inequalities take various forms – spatial, economic, social, ethnic-racial, and gender – affecting public health policies and conditions.

Health policies in Brazil, like in other Latin American countries, expanded throughout the 20th century into two main branches [4]. One branch focused on healthcare for workers in the formal sector, linked to a social insurance system supported by financial contributions. This branch was characterized by high client segmentation, institutional fragmentation, centralized decision-making, a focus on hospital care, and limited effectiveness in improving health outcomes. It also had limited coverage, excluding informal workers, rural workers, and the unemployed. The other branch consisted of vertical public health programs, mostly aimed at controlling specific infectious diseases. Despite incremental reforms and occasional efforts to expand access, this institutional duality persisted for decades. Additionally, from the 1960s onward, the private health sector expanded, supported by state subsidies, marked by a notable increase in private hospitals and the rise of the private insurance sector [5].

In the 1980s, the process of democratization in the country led to intense social mobilization in favour of expanding rights. In this context, the movement for Brazilian health reform [6, 7] succeeded in influencing the 1988 Constitution, which recognized health as a right for all and a duty of the State, based on a broad view of Social Security. This Constitution established the SUS, which became one of the largest and most complex public health systems in the world, providing universal, free health care to all. The main principles of SUS include universality, comprehensiveness, equality, political-administrative decentralization, and social participation.

The SUS includes comprehensive health policies and guarantees healthcare as a right for every Brazilian citizen. It covers health promotion and surveillance strategies; primary, secondary, and high-complexity care; emergency and urgent services; pharmaceutical care; technological development, production, and distribution of strategic health supplies like vaccines, drugs, and diagnostic tests; health education and professional training efforts; and preparedness to respond to public health emergencies.

The adoption of a broad view of social determination of health also entails efforts to coordinate the SUS with other social and economic policies that influence living conditions and population health. Macroeconomic policies influence social conditions, depending on their redistributive effects, and are also crucial in defining public budget priorities [8]. Labor, social security, and social assistance policies play a key role in preventing poverty and ensuring decent living conditions for workers, older adults, and vulnerable groups. Sanitation and environmental policies are crucial for ensuring healthy living environments and preventing many infectious diseases. Scientific and industrial development policies are vital for enabling the domestic production of strategic health inputs such as vaccines and medicines, ensuring universal access and the sustainability of the health system.

Regarding financing, the SUS is tax-funded, non-contributory, and free of charge. The three levels of government must allocate resources to fund the SUS, with specific legislation setting minimum criteria for the distribution of government revenues to health at each level. In 2022, federal funding accounted for about 38% of public

expenditures, while states and municipalities accounted for 28% and 34%, respectively[5]. A large portion of the federal health budget is transferred to municipalities, which are responsible for providing health care services at the local level.

According to the Brazilian federation's institutional design, health policies are developed and carried out through cooperation among the federal, state, and municipal governments. Since the early 1990s, each government level has a single health authority – the Ministry of Health, the state secretaries, and the municipal secretaries – responsible for creating and implementing health policies within their respective jurisdictions, in collaboration with other actors. This marked a significant shift from the institutional configuration prior to the SUS, where responsibilities for public health and healthcare strategies were divided among different ministries and official departments.

Federative coordination is maintained through intergovernmental commissions at the national and state levels, which are strategic arenas for technical and political dialogue, negotiations and agreements on the health policy's agenda and implementation strategies. Even amid political and administrative decentralization of responsibilities, resources, and services, federal regulations and financial transfers remained potent mechanisms for advancing the implementation of national priorities [9]. The articulation between political-administrative decentralization and regionalization remain a structural challenge for the SUS [10].

Another key feature of the SUS is social participation, which aligns with the democratic values that supported health reform in Brazil. Society's involvement in health policies is ensured by the regular operation of participatory health councils at the three levels of government. These councils are deliberative and include representatives from government, service providers, health professionals, and system users, with the latter group holding half of the seats [11]. Additionally, every four years, health conferences are held at the municipal, state, and national levels, with hundreds of thousands of people across the country participating to help shape the strategic direction of health policies for the upcoming four years.

Over more than 35 years of implementation, the SUS has facilitated the expansion of public health actions and services nationwide and improved various health indicators[5]. Significant progress has been made in transforming PHC through the Family Health Strategy, which includes multidisciplinary teams and has achieved nationwide coverage. Moreover, PHC is expected to be adapted to community needs and to adopt coordination mechanisms to ensure continuity of care across higher levels of complexity. Another achievement was the development of internationally recognized comprehensive health policies, such as those for tobacco control and HIV (Human immunodeficiency viruses)/AIDS (acquired immunodeficiency syndrome) prevention, which coordinate actions from health promotion and prevention to complex treatments. There have also been notable advances in women's health and in mental health care – replacing psychiatric hospitals with community-based services and more appropriate approaches – among other examples.

In health surveillance, a field with a long history in Brazilian public health, SUS has led to significant progress [12, 13]. The first was increased institutional presence in the area, achieved through the creation of new structures at the federal level, followed by state and municipal bodies, and organizational rules that reinforced the systemic and federative

[5] Instituto de Pesquisa Econômica Aplicada (IPEA). Data from the Beneficiômetro da Seguridade Social. [Institute for Applied Economic Research (IPEA). Data from the Social Security Beneficiometer.] (In Portuguese). Accessed 09.12.2025. https://www.ipea.gov.br/portal/beneficiometro/beneficiometro-artigos/saude/gasto-publico-em-saude

approach. The second was expanding the scope from traditional infectious disease surveillance to include health promotion, environmental surveillance, violence prevention, and the management of non-communicable chronic diseases. The third involved establishing service networks and training professionals to identify, prepare for, and respond to health emergencies. Lastly, initiatives were introduced to coordinate surveillance efforts with PHC. In health regulation, there were also institutional advances, such as creating a new national regulatory agency and developing strategies for regulating technology adoption and ensuring quality control of health services, products, and inputs [14].

In the context of the economic-industrial health complex, in addition to some capacity to produce health supplies through private industry, Brazil also has public producers of vaccines, such as Fiocruz and the Butantan Institute, as well as medicines through the Oswaldo Cruz Foundation (Fiocruz) and state producers. This national production capacity is a strategic asset for ensuring the supply of inputs to the SUS, aligned with national priorities [15]. However, the country remains heavily reliant on imports of health products and lacks sufficient investment in science and technology that would bolster national sovereignty in health. In this regard, South-South cooperation is vital for fostering partnerships that improve the availability and accessibility of strategic health supplies for the entire population.

Despite significant progress over the last 35 years, important challenges to consolidating the SUS remain: health funding is insufficient, health infrastructure needs improvement, and health services and the health workforce are unevenly distributed nationwide. Regarding strategic health supplies such as medicines and vaccines, additional investment is vital to strengthen national capacity in science, technology, and production, and to ensure universal access and sustainability in an asymmetric global context. Finally, it is crucial to regulate and reduce state subsidies to the private health sector, whose growth and dynamics hinder the consolidation of the SUS [12].

China's health system

Over the past four decades, China has transformed its health system from a fragmented, largely out-of-pocket model into one of the world's largest systems of universal health coverage. Major reforms since 2009 reaffirmed the government's stewardship role in financing, regulation, and delivery, aiming to ensure essential service access, improve quality, and provide financial protection [3]. Enrolment in basic medical insurance has remained above 95%, while life expectancy rose to 79 years in 2024[6]. These gains reflect sustained investments in public health infrastructure, expansion of SHI, and strengthened service delivery capacity. However, challenges remain, including demographic ageing, persistent regional inequalities, rising burden of chronic diseases, and the need to further enhance primary care and disease-control capacities.

China operates a unified, state-led SHI system that has progressively consolidated and expanded coverage since the 2009 health reform. The Urban Employee Basic Medical Insurance, financed mainly through payroll contributions, covers employees in the formal sector, while the Urban–Rural Resident Basic Medical Insurance pools together the former urban resident and rural cooperative schemes and is funded primarily through government-subsidised premiums. Complementing these schemes, the Medical Assistance program provides additional financial support for low-income and vulnerable groups. Since 2018, the National Healthcare

[6] Gao Z. China's average life expectancy rises to 79 years in 2024. State Council Information Office; 2025. Accessed 09.12.2025. http://english.scio.gov.cn

Security Administration (NHSA) has overseen SHI administration, drug and device price negotiation, reimbursement policy, and payment reform, reducing fragmentation and strengthening equity and strategic purchasing across the system [16, 17].

Service delivery in China is organised through a three-tier system – primary health-care institutions, secondary hospitals, and tertiary hospitals – with public hospitals providing most of the medical care. Although private hospitals now constitute a significant portion of healthcare providers, public institutions still handle most of the service volume. Influenced by patient preferences and different diagnostic capabilities, hospitals often serve as the first point of access. Data from 2021 to 2024 highlights a divergent trend within this system: primary care institutions have shown resilience by absorbing a massive rebound in outpatient visits, but their role in inpatient care has levelled off. Meanwhile, tertiary hospitals have experienced steady growth in both outpatient and inpatient volumes, reinforcing a centralized model. This concentration poses ongoing challenges for resource allocation and the continuity of care required for chronic disease management, suggesting that although primary access is expanding, the systemic shift toward a fully integrated, prevention-led hierarchy remains in progress [17].

China's health-care infrastructure has continued to expand. By 2024, the country had 7.3 hospital beds, 3.6 licensed (assistant) physicians, and 4.1 registered nurses per 1,000 population, reflecting steady improvements in service capacity[7]. Nevertheless, significant regional and structural disparities persist. Eastern provinces maintain markedly higher densities of health workers, more advanced equipment, and stronger fiscal capacity than central and western regions. Moreover, despite overall resource growth, high-quality medical resources – such as tertiary specialists, advanced diagnostics, and high-performing hospitals – remain unevenly distributed, contributing to persistent cross-regional patient flows and overcrowding in major urban centres.

China maintains a four-tier CDC (Centers for Disease Control and Prevention) system and, since COVID-19, has advanced comprehensive reforms to modernize its disease-control capacity. Following the establishment of the National Disease Control and Prevention Administration in 2021, reforms have clarified the functions of the CDC across administrative tiers, strengthened governance structures, and enhanced the core capacity for infectious disease prevention and control. The 2024 roadmap priorities upgrading real-time surveillance and early warning systems, enhancing laboratory and emergency-response capacity, and establishing national and regional public-health centers to support integrated command and resource sharing. The agenda also promotes closer alignment between prevention and clinical care through cross-training, data integration, and clearer public-health roles for hospitals. Multisectoral collaboration, community engagement, and strengthened workforce development are supported by newly established Academies of Preventive Medicine [18]. Traditional Chinese Medicine remains integrated across primary care, rehabilitation, and chronic disease management.

China's total health expenditure has continued to rise alongside broader health-system reforms. By 2023, the country's health spending reached 7.2% of gross domestic product, reflecting sustained government prioritization of health investment. Public financing – including government budgets and SHI – remains the dominant funding source, while out-of-pocket expenditure fell to 27.3%, a substantial decline from 59% in 2000,

[7] National Bureau of Statistics of China. Official statistics. 2025 (In Chinese). Accessed 09.12.2025. https://www.stats.gov.cn/

driven by expanded insurance coverage, equalization of public-health services, and strengthened pharmaceutical governance [19].

Since the establishment of the NHSA in 2018, strategic purchasing and payment reforms have accelerated. A key priority has been reducing dependence on fee-for-service, previously associated with cost escalation and provider-induced demand. National roll-out of diagnosis-related groups, diagnosis-intervention packet payments, global budgets, and capitation for primary care is underway, aiming to align provider incentives with efficiency, quality, and value. Complementary reforms in public hospitals – including strengthened performance evaluation, centralized procurement of medicines and high-value consumables, and elimination of profit-linked drug mark-ups – seek to curb cost growth and enhance accountability [20, 21]. These combined financing and governance reforms form the core of China's shift toward a more equitable, efficient, and sustainable health system.

Russia's health system

The Russian Federation, with over 17 million km^2 of territory and approximately 146 million inhabitants[8], spans eleven time zones and encompasses a wide range of climatic, geographic, and socio-economic conditions. To serve its entire population, Russia has built a multilayered healthcare system – from medical outposts in remote villages to federal research institutes in major cities – ensuring universal access.

Under the Constitution of the Russian Federation, every citizen has the right to health protection and medical care[9]. Additionally, it specifies that "medical care rendered in state or municipal healthcare institutions shall be provided free of charge to all citizens, financed through corresponding budgets, insurance payments, and additional revenue sources."

The constitutional guarantee of accessible medical care for Russian citizens is further reinforced by the Mandatory Health Insurance System. This system serves as the cornerstone for securing universal coverage of healthcare services nationwide. According to Federal Law No. 323-FZ (2011), citizens are entitled to receive medical care free of charge within the scope defined by the State Program for Guaranteed Free Medical Care. This encompasses a wide spectrum of care options, ranging from PHC services to highly specialized treatments and cutting-edge medical procedures[10].

Federal Law No. 323-FZ delineates the institutional framework for establishing state-backed guarantees that ensure the availability of free medical care for all citizens. It mandates the formulation of Regional Programs of State Guarantees, thereby operationalizing these commitments at the subnational levels across Russia[11]. The organizational structure of the healthcare system in the Russian Federation consists of three tiers. This division reflects differentiation based on accessibility and complexity of medical services provided to the population.

The origins of PHC in Russia can be traced to Nikolai Semashko, regarded as the architect of the first state-run health protection system. Through his efforts, he created a new healthcare model focused

[8] Russian Federal State Statistics Service. Population (01.01.2025) resident population estimate. Accessed 09.12.2025. https://eng.rosstat.gov.ru/

[9] Russian Federation. Constitution of the Russian Federation. Accessed 09.12.2025. https://mid.ru/upload/medialibrary/fa3/xwhwumdwunawy9iprvhcxdqds1lzxqdx/CONSTITUTION-Eng.pdf

[10] Федеральный закон от 21.11.2011 г. № 323-ФЗ. Об основах охраны здоровья граждан в Российской Федерации [Russian Federation. Federal Law No. 323-FZ of November 21, 2011. On the Fundamentals of Citizens' Health Protection in the Russian Federation] (in Russian). Accessed 09.12.2025. http://government.ru/docs/all/100186/

[11] Ibid.

on safeguarding public health, extending lifespan, and preventing diseases. The principles formulated by N.A. Semashko in 1918 remain applicable in many countries today [22]. Key elements include universal accessibility and free-of-charge medical aid of all types, priority attention given to childhood and maternity, preventive focus in health protection, elimination of social roots of illness, unity between medical science and practice, prevention and treatment, public character of healthcare, continuity in rendering medical care.

These principles formed the basis of the Alma-Ata Declaration adopted on September 12, 1978, during the International Conference on PHC conducted by World Health Organization[12]. The Alma-Ata Declaration was a landmark event in the history of public health in the twentieth century, defining PHC as the cornerstone for achieving the global objective of "Health for All" and emphasizing its importance as the foundation of global healthcare systems.

Today's healthcare model builds upon historical experiences and multilevel characteristics adapted to the territorial peculiarities of different regions. Thus, the current system incorporates several distinctive traits: provision of PHC characterized by comprehensiveness and implemented via polyclinics, rural health posts, and family doctors; emphasis on disease prevention, early diagnosis, and continuous medical care; reinforcement of outpatient services, home visits, and digital technologies to enhance accessibility and efficiency.

Contemporary Russian healthcare operates along a three-tier structure [23]. At the first tier are medical organizations primarily offering PHC, including primary specialized medical assistance: Central District Hospitals, district hospitals, clinic-hospitals, ambulatory clinics, city hospitals, urban polyclinics. These establishments play a vital role in preventing diseases, diagnosing, and treating most illnesses at early stages. Regular check-ups, vaccinations, treatment of minor illnesses, and referrals to specialists when needed are part of their routine activities.

Second-tier institutions provide mainly specialized medical care, housing either inter-municipal divisions or centers, as well as district and city dispensaries, multi-profile city hospitals. Equipped with appropriate technology, these entities enable diagnostics and treatment for a broad range of conditions, additionally offering consultations with narrow-specialized physicians.

Third-tier facilities deliver specialized medical care alongside those providing high-technology medical services, including regional (oblast, krai, republican) hospitals, children's hospitals, research institutes, and university clinics. Specializing in highly qualified and technologically advanced medical care, these institutions treat severe illnesses and perform unique operations using cutting-edge techniques and equipment. Thus, the three-tier healthcare system operating at the regional level allows for optimal allocation of resources and services depending on patient disease severity. Each tier interacts continuously, providing comprehensive medical assistance to every citizen.

The Russian Federation ensures universal access to medical services for its entire population, which is supported by a multifaceted governance structure, where different levels of administration fulfil distinct yet complementary roles in organizing and supervising healthcare delivery[13].

At the helm of this system sits the Ministry of Health of the Russian Federation, charged with crafting and implementing the national

[12] World Health Organization. Declaration of Alma-Ata. 1978. Accessed 09.12.2025. https://cdn.who.int/media/docs/default-source/documents/almaata-declaration-en.pdf

[13] Федеральный закон от 21.11.2011 г. № 323-ФЗ. Об основах охраны здоровья граждан в Российской Федерации [Russian Federation. Federal Law No. 323-FZ of November 21, 2011. On the Fundamentals of Citizens' Health Protection in the Russian Federation] (in Russian). Accessed 09.12.2025. http://government.ru/docs/all/100186/

healthcare policy. The Ministry of Health sets industry-wide standards for medical services and coordinates the nationwide operations of healthcare institutions. Importantly, at the federal level, national medical research centers, top-ranked medical universities, and the Federal Biomedical Agency play integral roles. These institutions provide expert guidance, drive medical innovation, formulate clinical recommendations, and conduct training for healthcare professionals.

Underpinning the system is the Mandatory Health Insurance Scheme, administered by the Federal Mandatory Health Insurance Fund. This fund shoulders the financial burden of medical care, ensuring that Russian citizens do not face additional costs when accessing healthcare.

Ensuring quality in medical services falls under the purview of Roszdravnadzor, the Federal Service for Healthcare Oversight. This agency rigorously monitors compliance with healthcare standards, performs inspections of medical institutions, and introduces innovative measures to enhance service quality.

Executive authorities in the healthcare sector of Russia's 89 constituent entities or regions assume responsibility for organizing and delivering medical services at the regional level. These authorities must implement federal healthcare policies, customizing them to match regional realities, coordinate the work of local medical institutions, secure citizens' access to medical services, and enforce compliance with established standards. Operating in close collaboration with federal agencies, regional authorities contribute to a cohesive and comprehensive governance framework.

The Ministry of Health charts the national policy and strategic direction, while regional authorities are tasked with executing healthcare services locally. This dual structure ensures alignment with national objectives while accommodating regional variations in healthcare needs.

Final considerations

The comparative analysis of the health systems of Brazil, China, and Russia highlights both shared foundations and significant institutional diversity, reflecting distinct historical trajectories, political economies, and governance arrangements. Despite these differences, the three countries converge around a strong role of the State in health system organization and a formal commitment to universal access to health care.

A key similarity lies in recognizing health as a public responsibility, anchored in constitutional or legal frameworks that guarantee access to a defined set of services. In all three countries, public authorities play a central role in financing, regulating, and coordinating health systems, even as mixed provision and private actors coexist to varying degrees. Moreover, Brazil, China, and Russia have invested in nationwide service delivery networks, large-scale public health infrastructures, and mechanisms to expand population coverage, reflecting an understanding of health systems as strategic components of social protection and national development.

At the same time, important differences emerge in institutional design and policy orientation. SUS is distinctive for its rights-based foundation, high degree of political-administrative decentralization, and institutionalized mechanisms of social participation, which embed democratic governance into health policymaking. China's health system stands out for its strong central steering capacity, rapid scaling of SHI coverage, and recent advances in strategic purchasing, digital health, and disease-control system reform, although persistent regional inequalities and hospital-centered care remain challenges. Russia's

system, shaped by the Semashko legacy, combines universal coverage through mandatory health insurance with a hierarchical, territorially organized service delivery model, that emphasizes continuity of care, prevention, and state-led coordination across vast and heterogeneous regions.

These differences illustrate multiple pathways toward universal health systems strengthening, challenging linear or prescriptive models. They also underscore how historical legacies, state capacity, territorial characteristics, and political priorities shape the balance between centralization and decentralization, preventive and curative care, and public and private roles within health systems.

From a global health perspective, the experiences of Brazil, China, and Russia offer important lessons at a time of increasing uncertainty in multilateral governance and renewed emphasis on national health system resilience. The COVID-19 pandemic reinforced the strategic importance of robust public health capacities, coordinated governance, domestic production of essential health technologies, and integrated surveillance and response systems – areas in which BRICS countries have accumulated relevant, though uneven, experience.

In this context, cooperation among BRICS health systems holds significant potential. Comparative findings reinforce the strategic importance of structured cooperation among BRICS countries in areas such as pharmaceutical production, digital health governance, workforce training, and strengthening PHC. Research collaboration and policy dialogue within BRICS networks can further support the exchange of institutional innovations and context-sensitive solutions, reinforcing South – South cooperation in health.

Ultimately, the cases of Brazil, China, and Russia demonstrate that strengthening health systems in the Global South requires not only technical solutions but also political commitment to universality, equity, and public stewardship. By fostering cooperation grounded in shared challenges and diverse institutional experiences, BRICS countries can contribute to advancing alternative approaches to health system development and to reshaping global health debates in favor of more inclusive, solidarity-based models.

References

1. Kruk ME, Gage AD, Arsenault C, et al. High-quality health systems in the Sustainable Development Goals era: time for a revolution. *Lancet Glob Health.* 2018 Nov;6(11):e1196–e1252. doi:10.1016/S2214-109X(18)30386-3. Epub 2018 Sep 5.
2. Liu Z, Wang Z, Xu M, Ma J, Sun Y, Huang Y. The priority areas and possible pathways for health cooperation in BRICS countries. *Glob Health Res Policy.* 2023;8(1):36. doi:10.1186/s41256-023-00318-x
3. Tao W, Zeng Z, Dang H, et al. Towards universal health coverage: achievements and challenges of 10 years of healthcare reform in China. *BMJ Glob Health*. 2020;5:e002087. doi:10.1136/bmjgh-2019-002087
4. Fonseca CMO. Saúde no Governo Vargas (1930-1945): dualidade institucional de um bem público. [Health in the Vargas Government (1930-1945): Institutional Duality of a Public Good] (In Portuguese). Editora Fiocruz; 2007. 298 p. ISBN: 978-85-7541-132-2
5. Menicucci TMG. Público e privado na política de assistência à saúde no Brasil: atores, processos e trajetória. [Public and private in the health care policy in Brazil: actors, processes, and trajectory] (In Portuguese). Editora Fiocruz; 2012. 320 p.
6. Escorel S. Reviravolta na saúde: origem e articulação do movimento sanitário. [Upheaval in health: origin and articulation of the health movement] (In Portugues). Editora Fiocruz; 1999. 208 p. ISBN:8585676574

7. Paim JS. Reforma sanitária brasileira: contribuição para a compreensão e crítica [Brazilian health reformcontribution to understanding and criticism] (In Portugues). EDUFBA; Editora Fiocruz; 2008. 356 p. ISBN 978-85-7541-359-3
8. Guidolin AP, David G, Rossi PL. The public healthcare financing policy in Brazil: challenges for the post-pandemic future. *Rev. Econ. Contemp.* 2023;27:e232715 doi:10.1590/198055272715
9. Viana AL d'Ávila, Machado CV. Descentralização e coordenação federativa: a experiência brasileira na saúde [Decentralization and federative coordination: the Brazilian experience in health] (In Portuguese). *Cien Saude Colet.* 2009;14(3):807–817. doi:10.1590/S1413-81232009000300016
10. Pereira AMM, Lima LD, Machado CV. Descentralização e regionalização da política de saúde: abordagem histórico-comparada entre o Brasil e a Espanha [Decentralization and regionalization of health policy: a historical-comparative approach between Brazil and Spain]. *Cien Saude Colet.* 2018 Jul;23(7):2239–2252. (In Portugues). doi:10.1590/1413-812320182337.08922018
11. Bispo JP, Serapioni M. Community participation: lessons and challenges of the 30 years of health councils in Brazil. *J Glob Health.* 2021;11:03061. doi:10.7189/jogh.11.03061
12. Machado CV, Silva GA. Political struggles for a universal health system in Brazil: successes and limits in the reduction of inequalities. *Glob Health.* 2019;15(suppl 1):77. doi:10.1186/s12992-019-0523-5
13. Waldman EA. Os 110 anos de Vigilância em Saúde no Brasil [110 Years of Health Surveillance in Brazil]. *Epidemiol Serv Saude.* 2012;21(3):365–366. (In Portuguese). doi:10.5123/S1679-49742012000300001
14. Teixeira MG, Costa MDCN, Carmo EH, Oliveira WKD, Penna GO. Vigilância em Saúde no SUS – construção, efeitos e perspectivas [Health surveillance in the SUS – construction, effects, and perspectives]. *Cien Saude Colet.* 2018;23(6):1811–1818. (In Portuguese). doi:10.1590/1413-81232018236.09032018
15. Silva JAAD, Costa EA, Lucchese G. SUS 30 anos: Vigilância Sanitária [SUS 30 years: health surveillance]. *Cien Saude Colet.* 2018;23(6):1953–1961. (In Portuguese). doi:10.1590/1413-81232018236.04972018
16. Gruber J, Lin M, Yang H, Yi J. China's social health insurance in the era of rapid population aging. *JAMA Health Forum.* 2025;6:e251105. doi:10.1001/jamahealthforum.2025.1105
17. Yip W, Fu H, Chen AT, et al. 10 years of health-care reform in China: progress and gaps in Universal Health Coverage. *Lancet.* 2019 Sep;394(10204):1192–1204. doi:10.1016/S0140-6736(19)32136-1
18. Zeng Z, Chen H, Chen Q, et al. Advancing China's disease control and prevention system: a strategic roadmap for high-quality development. *China CDC Wkly.* 2024 Sep;6(38):975–978. doi:10.46234/ccdcw2024.202
19. Liu X., Tang H. Health system strengthening in China: progress, challenges and ways forward. *The BRICS Health Journal.* 2024;1(1):59–70. doi:10.47093/3034-4700.2024.1.1.59-70
20. Fang H, Eggleston K, Hanson K, Wu M. Enhancing financial protection under China's social health insurance to achieve universal health coverage. *BMJ.* 2019;365:l2378. doi:10.1136/bmj.l2378
21. Xu J, Jian W, Zhu K, Kwon S, Fang H. Reforming public hospital financing in China: progress and challenges. *BMJ.* 2019;365:l4015. doi:10.1136/bmj.l4015
22. Reshetnikov VA, Nesvizhsky YuV, Kasimovskaya NA. A contribution of N.A. Semashko to the development of medical prevention in Russia (to the 140-th anniversary of the birth). *Sechenov medical journal*. 2014;3(17):29–33.
23. Semenova Y, Lim L, Salpynov Z, Gaipov A, Jakovljevic M. Historical Evolution of Healthcare Systems of Post-Soviet Russia, Belarus, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan, Armenia, and Azerbaijan: A Scoping Review. *Heliyon.* 2024;10(8):e29550–e29550. doi:10.1016/j.heliyon.2024.e29550